Exemption No. 5613

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056

In the matter of the petition of

Boeing Commercial Airplane Group **Regulatory Docket No. 27023**

for an exemption from §§ 25.1415(c) and 121.339(c) of the Federal Aviation Regulations

GRANT OF EXEMPTION

By letter B-TO2R-92-2226 dated October 15, 1992, Mr. K. K. Usui, Manager, Airworthiness, Orgn. B-TO2R, Mail Stop 69-10, Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207, petitioned for an exemption from the survival equipment attachment requirements of §§ 25.1415(c) and 121.339(c) of the Federal Aviation Regulations, for Model 757-200 airplanes equipped with slide/rafts.

Section of the FAR affected:

Section 25.1415(c), Amendment 25-29, which is included by reference in the type certification basis of the Boeing Model 757 airplane, requires that approved survival equipment must be attached to each liferaft.

Section 121.339(c) requires that a survival kit, appropriately equipped for the route to be flown, must be attached to each required life raft.

Related sections of the FAR:

Section 25.1411 and other paragraphs of §§ 25.1415 and 121.339 prescribe related requirements for ditching equipment.

The petitioner's supportive information is as follows:

Boeing states that on the Model 757, survival kits are stowed separately from their designated attachment points on the slide/rafts "so as not to compromise the primary use of the slide/raft as an escape slide." The requirements for the kits to be "attached" are currently met with operational procedures to

remove the kits from their stowage locations, and attach them to the slide/rafts prior to a planned ditching. Boeing proposes with this petition to allow survival kits, as currently provided, to remain stowed until after the ditching has occurred, and to attach them only after slide/raft deployment. In support of this petition, Boeing indicates that this proposed procedure would:

(1) Simplify crew training, and reduce the potential for cabin crew confusion during an emergency, because door and slide/raft preparation procedures would become the same whether for a normal or emergency landing, on land or water, and

(2) Provide for commonality with existing procedures for accessing a stowed emergency locator transmitter (ELT), and deploying it after a ditching.

Boeing expresses the opinion that providing long-term survival equipment has become less relevant to assuring the survival of liferaft occupants than may have been the case in the past, prior to the advent of modern technology utilized in the rapid location and rescue of those occupants.
As a condition of the exemption, Boeing proposes that the emergency locator transmitter (ELT) required by §§ 25.1415(d) and 121.339(a)(4) be of a type that communicates directly with the Global Positioning System (GPS).

Boeing states that granting the petition would be in the public interest because it will:

(1) Help serve the needs of 757-200 operators,

(2) Minimize crew cross-training requirements for mixed fleet (overwater and non-overwater) operations,

(3) Tend to reduce air fares,

(4) Help to preserve flight safety by minimizing special ditching procedures, and

(5) Improve the potential for sale to foreign operators, thereby improving the U.S. balance of payments.

A summary of the petition was published in the Federal Register on November 6, 1992 (57 FR 53162). When it was noted that the summary inadvertently failed to accurately reflect the nature of the petition, it was revised and re-published on December 7, 1992 (57 FR 57856). No comments were received.

The FAA's analysis/summary is as follows:

The FAA has carefully considered the information provided by the petitioner, as well as other relevant information, and has determined that there is sufficient merit to warrant granting this petition. The following background information, not provided as part of the petition, was considered:

(1) Current requirements address only life rafts, not the more recently developed slide/rafts that are commonly approved for use in lieu of life rafts. Slide/rafts are considered to be superior to life rafts because, by virtue of being installed on the exit doors, they do not require retrieval from a stowed location prior to manual launching, and are instead automatically deployed upon opening the door. Required survival equipment is typically packaged integrally with the life raft or slide/raft, thus complying with the "attached" requirement.

(2) Slide/rafts were approved for installation on the Boeing Model 757, even though the doors were unable to accommodate the additional weight and bulk of the required survival equipment with the slide/rafts, i.e., the survival equipment could not be "attached." Approval was based on a formal finding of equivalent safety, in which the perceived increase in safety through utilization of slide/rafts in lieu of life rafts outweighed the disadvantage of unattached survival equipment. Slide/rafts are automatically available when the door is opened, and provide immediate access for passengers into a flotation device. Traditional portable rafts must be retrieved from stowed locations, and launched through exits. Whether this is done before or after the ditching varies with operators' procedures. The rafts typically weigh in excess of 100 lbs. As part of that approval, certain survival equipment was required to be packaged separately into kits, and stowed near the exits. Procedures were then approved that required the kits to be retrieved and attached to the associated slide/rafts prior to ditching. (Each kit is contained within a soft-sided 11" x 18" x 6" valise, weighs approximately 16 lbs., and attaches to a slide/raft "D"-ring with a clip on the end of an approximately 23" lanyard. The kits contain only items relating to longer-term survival such as water rations, canopy, etc.)

(3) Subsequent to that approval, a number of potential deficiencies relating to the means utilized for attaching the kits have been identified:

> (a) The kits may be mispositioned by the crew and/or dislodged by the forces experienced during a ditching, to a location that would cause interference with or jam the door. The probability of experiencing this condition increases as adjacent bulkhead, partition, or seat structures allow the kit to become wedged between it and the door. It is noted that the positioning instructions placarded on the kits actually inadvertently requires placing the kits in a location most likely to cause an interference/jam condition.
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> (b) The kits may flail about during the ditching event, subjecting occupants seated nearby, including flight attendants, to injury. Although this possibility was addressed during initial approval, the forces likely to be encountered during a ditching are acknowledged to be undefined, and warrant consideration of the injury potential. Injured occupants, especially flight attendants, seated in the passageway to an emergency exit may delay or prevent evacuation from that exit.
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> (c) The kits attached to deployed, but not yet disconnected, slide/rafts lay either in the passageway to the exit or on the threshold of the slide/raft, creating a potential tripping hazard and impediment to what might otherwise be an expeditious evacuation. The kits so located and tethered are also subject to flailing about due to wave action, a further injury potential.

The FAA directed Boeing to address item (3)(a) above, and commit to retrofitting the affected

fleet with any design changes. Air Cruisers Service Bulletin 105-25-36 dated December 2, 1992, was subsequently issued which provides a modification kit that greatly alleviates, but does not entirely eliminate, the interference/jam problem. If an operator elects to continue to operate under the finding of equivalent level of safety, and not under the terms of this exemption, the FAA may consider mandatory action to implement the service bulletin.

In view of the foregoing, the FAA considers that occupant safety on Boeing Model 757 airplanes may be enhanced during a ditching event if the kits were not "attached." However in order to provide the same level of safety subsequent to ditching as that intended by the requirements or by the currently-approved attachment procedures, the new procedures that are to be proposed and approved as part of implementing this exemption, should attach the kits subsequent to evacuation but prior to disconnect. Notwithstanding approval of this procedure in principle, however, the FAA recognizes that conditions subsequent to ditching are likely to be more chaotic than those prior to ditching, and that consequently, procedures intended for accomplishment subsequent to a ditching may not be as reliably accomplished as those accomplished prior to ditching. Therefore, the FAA considers the petitioner's proposal relative to ELT's as an integral part of this exemption. In order to minimize any potentially adverse effects on survivors of losing the benefit of survival equipment through failure to accomplish attachment procedures, existing ELT's should be replaced with those that would, in addition to complying with current requirements (121.5/243.0 MHz), incorporate the 406 MHz capabilities of TSO-C126, to facilitate the earliest rescue of survivors. The enhanced capabilities of the 406 MHz ELT make rapid location and rescue more likely, and tend to obviate the need for long term survival equipment to some degree.

The argument that it is advantageous to establish the same stowage, retrieval, and deployment procedures for survival kits as for ELT's has merit. So, too, does the argument that current search and rescue capabilities have reduced the importance of survival equipment from what it may have been in the past. They do not, by themselves however, justify exemption from compliance with existing requirements. Boeing's arguments in support of the petition relative to serving the needs of 757 operators, reducing air fares, and improving sales to foreign operators were unsubstantiated, and are not considered in the disposition of this petition.

In consideration of the foregoing, I find that a grant of exemption is in the public interest, and will not adversely affect safety. Therefore, pursuant to the authority contained in §§ 313(a) and 601(c) of the Federal Aviation Act of 1958, delegated to me by the Administrator (14 CFR 11.53), the petition of the Boeing Commercial Airplane Group for exemption from the survival kit attachment requirements of §§ 25.1415(c) and 121.339(c) of the FAR is granted for Model 757-200 airplanes, with the following two provisions:

1. Operators shall propose and obtain approval for procedures to attach survival kits subsequent to ditching and prior to slide/raft disconnect from the airplane.

2. Each affected airplane shall be provided with a minimum of one ELT with the 406 MHz capability of TSO-C126, in addition to that already provided in compliance with existing TSO-C91a (121.5/243.0 MHz) requirements. This provision may be met with either separately provided ELT's, or with one ELT incorporating all requirements.

Issued in Renton, Washington, on

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Transport Airplane Directorate,
Aircraft Certification Service,

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